Indigenous People's Health Action (IPHA)

Government of Japan
Ministry of Foreign Affairs

SOCIAL ENTREPRENEUR MODEL (SEM)

SEM IMPLEMENTATION REPORT

January 2013

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

Under the Clinca 205 Solution Efficiency Study Project six villages were selected to pilot a centralized Social Entrepreneur Model (SEM) Clinca based drinking water production system. All six SEM villages have established their Clinca treatment water production systems, they have decided upon their initial retail/ distribution strategies, and they have commenced sales. However, the feasibility of the SEM approach from both a health impact and social business approach is difficult to ascertain at this stage, due to the short period of time that they have existed. At present sales/ utilization are low, to identify positive health impact there needs to be a high number of Clinca treated water sales to a large percentage of the people in the village. However, considering the reduction in prevalence observed under the CRCT dimension of the Clinca 205 Solution Efficiency Study project, it is anticipated that Clinca-treated water users in the SEM target villages will also experience a similar 50%+ diarrheal prevalence rate reduction.

From a hardware perspective, the SEMs created under the project are both replicable and scalable. However, replication/ scalability is not limited to hardware, there are various software components that are essential in the scale-up of SEMs. Replication/ scale-up needs to be based on reflection upon which approaches, activities, and processes learned from the projects individual SEM sites best demonstrate their ability to address the root causes of access to poor quality drinking water and to identify the most effective approaches to develop these initiatives further.

Scale-up will undoubtedly help deliver improved health benefits, improved community access to clean/ safe drinking water, while also reducing water related disease prevalence. It is anticipated that once the positive health impacts of Clinca treated water are demonstrated by the CRCT dimension of the project and the SEM Clinca treated water users at the individual/ household levels demand for Clinca treated water will significantly increase, which will need to be met with increased supply via scale-up and replication.

2. SEM INTRODUCTION

2.1 SEM Background

Social entrepreneurship engages communities in achieving their own social objective through a business orientated approach, in this case adequate access to safe drinking water. One of the Clinca 205 Solution Efficiency Study Projects Goals was to pilot a centralized Social Entrepreneur Model (SEM) based drinking water production system in target villages to establish the operational feasibility and health impacts of the SEM approach. This was implemented through the piloting of centralized SEM based drinking water production system in six target villages. Unlike the other project Arms, the SEM villages were not randomly assigned, they were selected based on high population density and relative middle *(and higher)* income levels.

The long-term objectives of the project's SEM component are to:

1. Test the feasibility of the SEM approach in selected villages, from a sustainability and community ownership perspective
2. Determine the community health and uptake impacts of the SEM approach for household safe water provision
3. Create a replicable approach with documentation for scalability to other contexts/ villages through future projects.

It is anticipated that SEM approach could be used as a model platform to create a sustainable and participatory community-based approach to safe water production that is both replicable and scalable to other contexts and/ or villages.

The social entrepreneurship approach is a new concept for these remote target villages as is the use of Clinca treated water. As a consequence of this, each of the SEM groups will need to adapt their strategy based on the unique characteristics and environmental conditions present in their communities, in regards to production model, price per liter, marketing, and distribution network of Clinca treated water for retail.

The project's SEM staff has worked closely with villagers to form six village based SEMs that utilizes existing locally available materials to establish a means of production and distribution approach that is suitable for their particular operating environment. The unit price will be set by communities to generate a modest profit, that will then be used to increase the group's distribution network, expand the means of production *(based on demand)*, and develop their retail strategy to make the SEM groups financially viable and self-sustaining.

3. PLANNING

3.1 Village Selection

The six villages assigned to the SEM Arm are all located in the District of Vuen Sai *(see map presented as Figure 1 below)*:

The SEM villages are: Ban Pong, Kachon, Tiem Leu, Ka Lan, Vuen Sai and Koh Peak.

It was assumed by the project team that the SEM approach is not necessarily applicable to all villages in Ratanakiri province due to the very high levels of poverty in the province; however the project was not designed to test that hypothesis. The village selection criteria for the SEM component of this project was based on **high population density and relative middle *(and higher)* income levels** to ensure a viable potential customer base and reduced transportation costs. This decision was taken by project staff due to the project's SEM objective of testing the feasibility, sustainability and community ownership perspectives of the SEM approach. During the projects design phase the project team undertook an assessment investigating population density and income levels for prospective SEM village group assignment.

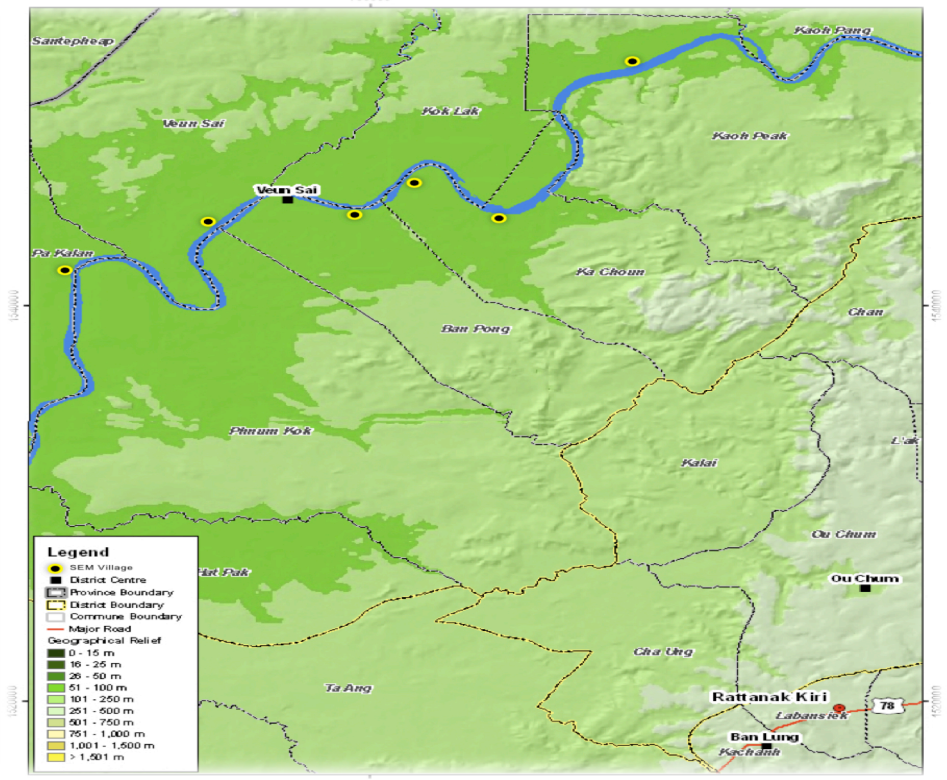


Figure 1: Location of the 6 SEM assigned villages in relation to Ban Lung, the Provincial capital of Ratanakiri province.

3.2 Operational Considerations

A number of other operational considerations were also taken into account to enhance community participation and the sustainability of the SEM Groups established.

3.2.1 Village Support

Prior to any activities taking place, the project team met with the Village Chiefs and local community level health workers *(VHSGs)* to discuss the project, its potential social/ health benefits, the use of Clinca 205, the SEM approach, and to obtain village level approval/ support for the project.

3.2.2 Appropriateness and Sustainability of Materials

Considering the low literacy/ education rates and the high poverty levels in the province, the project team adopted an approach that encouraged the use of locally available, low-tech inexpensive materials in establishing the SEM village's water production setup. A low-tech operating environment requires a low-tech water production model.

The project staff and the SEM Group members focused discussions on materials that can be procured locally, are easily assembled/ maintained, and are relatively inexpensive. Maintenance skills required are therefore minimal, and damaged parts can be repaired locally at low cost to the SEM Group – therefore not significantly interrupting production output.

3.2.3 Gender & Social Inclusion of SEM Group Members

Due to the modest profits that are generated by the social entrepreneurship approach it is essential to engage with SEM Group members from the villages who are in-part motivated by the positive social/ economic/ health impacts that the use of Clinca treated water can have in their communities. At the community level there is also a need for the project team to take into account appropriate considerations of the social/ economic and gender dynamics present in the operating environment during the design phase. These include understanding the different ethnic group's traditional beliefs, attitudes and practices in relation to work/ business, water provision, engaging with nature *(their religious practices are closely aligned with the natural environment around them, including strong beliefs related to forests and rivers etc)*. It is also important to understand the inter-relationship in regards to their traditional ethnic/ village level social hierarchy structure and the government assigned local governance structure; and also their strong beliefs related to the role/ work of women and the influential power dynamic that exists between men and women.

4. IMPLEMENTATION

4.1 Baseline Survey

The project team conducted an initial baseline survey in the SEM assigned villages to gain a better understanding of the operating environments and to ensure an in-depth understanding of the variables and factors that can potentially affect the success and sustainability of the SEM The six villages assigned to be the SEM target villages are in the District of Vuen Sai. These are: Ban Pong, Kachon, Tiem Leu, Ka Lan, Vuen Sai and Koh Peak villages. *(the Baseline Survey Form is attached as Appendix 4).*

To be considered credible the Baseline Survey was required to achieve a coverage rate ranging upwards from 35% of the households in the village to obtain an accurate interpretation of the current situation in the village as a whole. The baseline coverage rate in the different SEM target villages ranged from 35% to 67%.

The Baseline Survey was implemented through the following activities:

4.1.1 Baseline Survey Preparation

Recruitment of Surveyors: Ensuring adequate numbers to cover the required households, considering appropriate literacy levels and target village language requirements *(the different*

ethnic languages differ greatly, and a high percentage of the population do not speak the national language, Khmer).

Baseline Survey Training: The training provided included orientation on the project, training on how to conduct surveys, interviews and data collection; also agreeing standardised translations of key definitions. The training was followed by field practice and a reflection session to resolve any issues observed during the training field practice session.

4.1.2 Baseline Survey Implementation

All organisations have a slightly different approach to implementing baseline surveys at the community level, the below description is the approach used under this project:

- Upon arriving at the target village, the Survey Team assembled at the community meeting facility. This could be a Pagoda, Commune Meeting Hall or another structure determined by the Team Leader when in the field.

- The Survey Team then divided into two sub-teams, each surveying households working away from the meeting point in opposite directions along the main road. When the end of the village was reached, the surveyor's walk back through the village to the meeting point checking households along the way that were previously unoccupied.

- Two 'Sweeper Teams' also operated from either direction of the meeting point and concentrated on surveying households in side streets only.

- If respondents were unable to accurately answer the question, surveyors ask respondents to provide an estimate, and then proceeded to the next question.

The table below details the SEM Baseline coverage:

		Total Pop'n	Approx HH	HH Surveyed	Coverage %
Target SEM Villages	Ban Pong	1,086	181	102	56.4
	Teim Leu	345	58	23	40.0
	Kachon Kroum	582	97	34	35.1
	Ka Lan	2,105	212	142	67.0
	Vuen Sai	1,130	133	64	48.1
	Koh Peak	1,067	123	56	45.5
		6,338	**804**	**421**	**52.3**

4.2 Village SEM Group Formation

Following the Baseline Survey, the SEM project team again met with the Village Chiefs/ relevant village level actors to discuss in more detail the project, the benefits using Clinca treated water, the SEM concept and the activities necessary for the SEM Group formation/ establishment.

Following these discussions, the Village Chiefs assisted the project team in identifying an appropriate existing village level group/ organization or individuals to act as Social Entrepreneurs within the village for the production and selling of Clinca treated water. Each village SEM Group then selected a Group Leader to act as the focal person for liaising with the project team and provide leadership to the SEM Group. The project teams two imposed requirements in selecting the SEM Group members were that they be constituted by a group of individuals, not a single family-group, and that proposed members were motivated by the positive social/ economic/ health impacts that the use of Clinca treated water can have in their communities.

In collaboration with the SEM Groups and relevant village level authorities, the project team held a series of discussions and agreed on some basic plans outlining the method that will be employed for using Clinca 205 to produce water. During these discussions project staff also introduced the following ideas for consideration:

- A realistic/ affordable sale price per litre for Clinca treated water,
- The means for selling/ transporting the water, and
- The financial structure for handling revenues and compensation for the group/ members.

4.3 Water Production Systems

The village level SEM Groups discussed and agreed on the most appropriate setup for the water production and distribution models that they believe are most appropriate for their communities to produce Clinca 205 treated water for retail in their villages. Project staff did encourage discussions to focus on materials that are locally available, low-tech and relatively inexpensive to ensure that the approach adopted was cost-effective, sustainable, and as replicable as possible. However, the project team's views were not imposed on the villages level SEM Groups as this would reduce ownership and appropriateness of materials.

In the six target SEM villages a 3-tier water production system proved to be the most popular basic design and was selected by all villages, with slightly differing design variations *(see photographs presented as Figure 2, 3, and 4 below)*. The three different tiers of water production in this system are:

Stage 1 - Settling Tank: Locally available water *(e.g. river, stream, well sources)* is placed into the first tank and adequate time is allowed for any sediment to accumulate at the bottom of the tank, below the water outlet flow pipe.

Stage 2 - Clinca Treatment Tank: Water is then allowed to flow into Tank 2 where it is treated according to Clinca 205 instructions.

Stage 3 - Treated Water Tank: The final tank can then be filled with Clinca 205 treated water ready for sale – a small amount of Clinca is placed in this tank to ensure that there is no post-treatment contamination of the Clinca treated water.

NB: *All three tanks are thoroughly cleaned, filled with water and flushed 2-3 times prior to commencing water production. Regular, fortnightly/ monthly cleaning also needs to take place depending on the quality of locally available water.*

Figure 2: An angled 3-tier system being constructed in Kachon village (Left), and a straight 3-tier system in Vuen Sai Village (Right).

Figure 3: A straight 3-tier system with a gentle slope angle in Tiem Leu Village.

Figure 4: Ban Pong Village Chief (Left) and Ban Pong SEM Group Leader (Right) beside their water treatment system with an un-raised settling tank.

4.4 SEM Group Team Structure and Retail Strategies

All six villages discussed and agreed on their SEM team structure/ members. In five of the villages, a decision was taken to have a team of three people, which includes a SEM Group Team Leader who has overall responsibility for documenting the sales of Clinca treated water and two other members who are responsible for filling, cleaning, and maintaining the water tanks. All three people have the combined responsibility for village level marketing and information dissemination. Ban Pong village is the exception with four team members. This village has one extra team member whose sole responsibility is to maintain and clean the water production system.

All SEM villages have decided on their initial retail strategies and fixed the price per litre for Clinca treated water. The Tiem Leu's SEM Group approach differs markedly from the other five villages. This SEM Group aims to determine the price per litre based on the income level of the customer *(i.e. poor families pay less per litre of water)*. The Koh Peak SEM Group offers an incentive of free drinking water to villagers who help pump water and fill the water production tanks. The table below details the retail prices of the six different SEM Groups:

SEM Group	Price per litre	Team Members
Vuen Sai	1L = 300 riel	3 people
Kalan	1L = 300 riel	3 people
Ban Pong	1L = 300 riel	4 people
Tiem Leu	Flexible – depends upon income level of the customer	3 people
Kachon	5L = 500 riel	3 people
Koh Peak	1L = 300 riel	3 people

4.5 Procurement of Hardware/ Materials for the SEM's Water Production System

After the village level SEM Groups discussed/ agreed on the most appropriate design for the water production model, and the required hardware/ materials, the project staff procured the materials *(all easily available with 1-2 days notice)* and arranged for the delivery of the items to the villages, along with the necessary amount of Clinca 205 required based on the SEM Group's water production model design.

SEM Group Contribution/ Participation: While the project funded the procurement of the hardware/ materials required to establish the SEM Group's water production system, the SEM Group members supplied the wood required for the foundation, and physically constructed the water production system.

5. MONITORING

During the initial four weeks of the SEM Groups formation assigned project staff monitored the various SEM Group's activities on a weekly basis, providing advice and guidance. However, final decisions were made by consensus agreement between each SEM Group's members.

After the MoFA funded projects end date the IPHA project staff will continue to monitor the SEM Group's activities on a regular basis, and continue providing advice and support *(including sharing lessons learnt by the different SEM Groups)*. The IPHA will continue to support the SEM Groups so that they can adjust their strategies to the developing situation, increase the likelihood of sustainability and ensure continued accurate documentation of their sales/ approaches/ challenges etc so they can continue to be a source of learning/ replication.

6. REFLECTION ON ATTAINMENT OF PROJECT SEM OBJECTIVES

This section represents project staff's reflections on the attainment of the long-term objectives of the project's SEM component:

1. Test the feasibility of the SEM approach in selected villages, from a sustainability and community ownership perspective

The SEM approach is essentially a community-led model. Creating participatory SEM groups is emphasized as a means of promoting sustainability through community empowerment. This approach is appropriate for rural villages in Ratanakiri Province that are geographically isolated from commercial centres, lack access to agricultural and other markets, and are characterized by distinct ethnic groups, weak public institutions, and strong community cohesiveness.

In order to effectively operationalize the concept of sustainability and community ownership, a number of dimensions must be taken into account. Consideration of each is critical, due to the fact that they not only reflect different outcomes, but they also come to the fore at different stages of the project cycle. In order to ensure project sustainability, four essential dimensions were included in the design of this project:

Institutional Sustainability	SEM Groups will be self-sustaining after the project ends.
Community Resilience	SEM Groups are readily able to anticipate and adapt to change through clear decision-making processes, collaboration, and management of community resources.
Production Sustainability	A technically and environmentally sustainable system must maintain a stable resource base, and avoid overexploitation of renewable resources.
Structural Change	The structural dimensions of poverty are addressed through the empowerment of poor and marginalized rural households.

The one essential dimension that the project staff have not been able to entrench in relation to the sustainability of the SEMs is increasing Community Resilience This can only be achieved over a longer period of time than this current project. It can only be entrenched by undertaking regular monitoring and providing comprehensive training to SEM team members based on pre-determined topics *(such as; marketing, retail, and distribution strategies, finances etc.)*, and addressing the emerging needs of each individual SEM group through mentoring/ feedback and sharing lessons learnt. If provided the communities are readily able to anticipate and adapt to changes through clear decision-making processes, collaboration, and the effective management of available resources.

Sustainability is not only one of the principles of engagement central to successful project implementation, but also a critical challenge as it is not possible to claim lasting impact in terms of rural poverty reduction without ensuring this aspect of development.

2. Determine the community health and uptake impacts of the SEM approach for household safe water provision

Due to the business orientated nature of the SEM approach it is impossible at this stage for the project team to determine the positive health impacts of Clinca treated water on the populations of the six SEM assigned villages.

Identifiable positive health impacts are related to utilisation, under the SEM approach utilisation is directly related to uptake/ sales of Clinca treated water. The project's SEM Groups have only been established and selling Clinca treated water for a relatively short period of time. At present sales/ utilisation are low, therefore a quantifiable understanding of the positive health impact is

difficult to ascertain at this stage. To identify positive health impact there needs to be a high number of Clinca treated water sales to a large percentage of the people in the village.

Considering the reduction in prevalence observed under the CRCT dimension of the project, it is anticipated that Clinca-treated water users in the SEM target villages will also experience a similar 50%+ diarrheal prevalence rate reduction. It is also anticipated that information about the positive health impact of Clinca upon Clinca treated water users at the individual/ household levels will assist in increasing the demand for Clinca treated water at the village level. However, it should be noted that it can take time to persuade potential consumers to fit the purchase of Clinca treated water into their daily routines and household budgets.

3. Create a replicable approach with documentation for scalability to other contexts/ villages through future projects

Replication and scalability were key planning elements included from the outset of project implementation. From a hardware perspective, the SEMs created under the project are both replicable and scalable. However, replication/ scalability is not limited to hardware, there are various software components that are essential in the scale-up of SEMs. Replication should include strategies and mechanisms, which share knowledge, apply lessons learned and approaches from one site to another site, or between regions. Lessons learned from the implementation of the SEM dimension of the project will indicate the best approaches that can be replicated and mainstreamed into other villages and/ or contexts. Therefore, there is a demonstrable need for active engagement with SEM Groups in relation to training, technical support, monitoring, mentoring and information dissemination for any future scale-up.

Replication and scaling-up will help deliver health benefits, improve community access to clean water, support innovative approaches to determine the best use of clean water resources, whilst reducing water related disease risks. However, prior to replication there is a need for reflection on which approaches, activities, and processes from individual SEM sites best demonstrate their ability to address the root causes of access to poor water and to identify approaches to develop these further. The exact content of activities related to SEM scale-up can only be decided once it becomes clear which approaches are generating increases in demand and creating behavioural change.

The feasibility of the SEM approach from both a health impact and social business approach is difficult to ascertain at this stage, due to the short period of time that they have existed. However, the project team was pleasantly surprised by the enthusiasm with which Clinca and the possibility of access to palatable safe drinking water was greeted, by local officials and villagers. It is anticipated that once the positive health impacts of Clinca treated water are demonstrated by the CRCT dimension of the project and the SEM Clinca treated water users at the individual/ household levels demand for Clinca treated water will significantly increase, which will need to be met with increased supply via scale-up and replication.

7. TRAINING THE POOR TO BE ENTREPRENEURS

While some rural poor people are natural entrepreneurs, and there are examples of individuals that have created thriving businesses, the empirical evidence suggests that the vast majority of the rural poor lack the skills, vision, creativity and drive also needed for entrepreneurial success due to their environmental circumstances and limited exposure to education.

Once the water production system has been established the work of the SEM project team is not complete. To enhance the prospects of the SEMs being successful and sustainable it is imperative for the SEM project team to continue working with the SEM Groups to provide training and advice for an agreed period of time. It needs to be acknowledged that when establishing a Model with a social entrepreneurship business approach in a village level rural developing country context many of the people that will be the main *actors (SEM Group members)* have low education levels and are not aware of basic business concepts, i.e. the development of a marketing strategy.

One of the barriers that the SEM Groups will need to overcome is that the product, water, is a product that potential customers haven't been conditioned to think of as something they would ever have to buy, as it is easily available in rivers/ streams and wells *(a free gift from nature).* It takes time to change their behaviors and budgets to fit the product into their daily lives. For example, in the 1970s, bottled water was a foreign idea to most Americans—it wasn't part of American consumers' lifestyle. It took decades for large numbers of consumers to accept the notion of buying something you could get free out of the tap. For many rural/ poor potential consumers paying for clean safe drinking water may be viewed as an unnecessary expense, an extravagance. Therefore the SEM Groups must make the idea of paying money for safe/ clean drinking water seem natural and beneficial, and for sustainability of the market they must induce potential consumers to fit the purchase of Clinca treated water into their long-held routines and household budgets.

The SEM Groups will be focusing their sales on the notoriously challenging rural and low-income markets, which is challenging even to established medium and large sized companies. While literature detailing the benefits of social enterprises is widespread, little attention is paid to the personnel management and organization building of small sized enterprises trying to operate in these markets in a developing country context. To significantly increase the prospects of success and sustainability there is a need for the project teams SEM strategy to include adequate training, follow-up, monitoring and business mentoring throughout the project's management cycle. The SEM project team should invest time in developing protocols *(which can be amended to reflect the prevailing conditions in the village operating environment)* and 'best practice SEM models'. Exchange visits to 'Best Practice SEM Models' is an effective/ sustainable approach to peer-to-peer learning and facilitates sharing lessons learnt.

The SEM Groups need support, training, mentoring and advice on issues such as:

Organisational Structure – roles and responsibilities of individual SEM Group members
Basic Financial Book Keeping - handling revenues/ compensation for SEM Group members
Product Distribution System – appropriate/ low cost means of product transportation
Retail Strategy – identify the most appropriate distribution network *(e.g. via local shops)*
Marketing Strategy - how best to market the benefits of Clinca treated water, to give potential customers as many reasons as possible to use Clinca treated water
Regular Data Collection – collecting/using basic sales data/ stock management data
Procuring additional Clinca - for either product replacement or scaling up
Exploring the Use of SMS/ Mobile Phones - in relation to customers placing orders and sales/ stock replacement.

8. PROJECT HANDOVER

At the end of the project the project's SEM Team Leader officially turned-over complete ownership and management *(including responsibility for all assets, business strategy and financial management)* to the SEM Groups, with the approval of the Village Chief, for the continued production/ provision of SAFE drinking water at the village level.

The IPHA project staff members have made a commitment to continue supporting the SEM Groups so that they can assist them in developing their strategies/ approaches. It is felt that this is required to increase the likelihood of sustainability and ensure accurate documentation so that the Clinca SEMs established under this project can continue to be a source of learning/ replication.

9. CONCLUSION AND COMMENTS

The project team's approach to the establishment of the SEMs is essentially that of a community-led model, and the hardware used for the water production systems means that the approach is replicable, scalable and sustainable. However, the feasibility of the SEM approach to safe water provision, from both a health impact and social business perspective, is difficult to ascertain at this stage due to the short period of time over which the SEMs have existed. The data analyzed under the CRCT dimension of the project has demonstrated that Clinca has significant, strong health impacts in terms of reducing household diarrheal prevalence in a short period of time. The actual positive health improvement impacts of the SEM approach for safe water provision can only be determined over the medium to long term once there is a high number of Clinca treated water sales to a large percentage of the people in the target SEM villages. However, the project team anticipates that Clinca-treated water users in the SEM target villages will also experience a similar on average 50%+ diarrheal prevalence rate reduction.

It is anticipated that information about the positive health impact of Clinca upon Clinca treated water users at the individual/ household levels will assist in increasing the demand for Clinca treated water at the village level. However, the SEM Groups established under the project face two main challenges: firstly, the SEM Groups are operating in the notoriously challenging rural/ low-income markets; and secondly, potential customers haven't been conditioned to think of water as something they would ever have to buy. Therefore the SEM Groups must price their product appropriately, emphasize the health benefits of using Clinca treated water in their promotion activities; and over the medium to long term, make the idea of paying money for safe/ clean drinking water seem natural and beneficial. Despite the challenges identified in the SEM approach, considering the positive health impacts identified in the CRCT dimension of the project, it would appear that the community-led Clinca based water provision model is potentially the most effective, sustainable, cost-beneficial option currently available.

CASE STUDY #1

MR. NIEW ROAT
KACHON KROUM VILLAGE

Mr. Niew Roat, 39, has lived in Kachon Kroum village all of his life and is one of three members of an SEM team that has been established in his village.

Kachon Kroum village is located in Vuen Sai District along the Sesan River. The village comprises 97 households and 582 people who are mainly ethnic Tampuon. Kachon Kroum has a high population density, however only 3 of the 5 wells that have been constructed in the village are working. This makes accessing clean water difficult. Despite the 3 functioning wells the majority of people here collect their drinking water from the Sesan River or a small stream located nearby.

"My family are very fortunate" Roat states. "I have a job working for the village chief in the commune office from which I receive a modest monthly salary and can provide for my wife, 3 sons and 3 daughters".

"I remember when I was a child I used to collect water from the river also, but we now have a well in front of our house from which we all share the responsibilities of collecting our daily water". Roat's family stores this water outside in large steel drums. Any drinking water is first boiled and then stored in the house in a plastic container.

Hygiene training takes place in Kachon Kroum and Roat has shared this knowledge with his family. "I sometimes hear health advice on the radio and have received hygiene training from the local health centre and NGO's from time to time so I know about the relationship between water quality and health. This is why I have instructed my family to boil our drinking water".

Even so, during 2010 - 2011 Roat's village was severely affected by an outbreak of cholera. "Almost the entire village was sick and I was very worried for my family and myself during this time. Even though I took the time to boil our drinking water I didn't know if this could make the water 100 percent safe".

More than 590 confirmed cases of cholera were reported by Ratanakiri's provincial health authorities during this outbreak.

"I am very concerned about water quality because my village has many people who often get sick from diarrhea"

Social Entrepreneur Model (SEM)

Meetings have been held in Roat's village explaining the objectives of the SEM approach and Kachon Kroum's village chief has given his approval to implement the SEM.

An SEM village group has been established which comprises 3 people and 1 team leader who are responsible for filling the water tanks, cleaning the water tanks, and documenting sales of Clinca treated water.

SEM water production setup taking place in Kachon Kroum village

Delivery of materials and construction of the SEM water production setup in Kachon Kroum have been completed and the group are currently starting to sell their water to people in the village.

One of the major advantages of the SEM model is that it is flexible. Roat and his team can gradually adapt their approach to the unique situation in their community in regards to sale price per litre, marketing and distribution of Clinca treated water.

"At this early stage in the process we plan to sell 5 litres of treated water for 500 riel (approximately US$0.12). If the water is clean and healthy I will work hard to disseminate information about this project to everyone in the village".

The SEM teams' price of Clinca treated water is only a fraction of the price of bottled water currently being sold at shops in the village (0.5 litre for 1,000 riel). This low price should go a way to ensure good coverage and a high number of sales.

The SEM Project Manager will continue to monitor the situation in Kachom Kroum and provide advice and guidance to Roat and his fellow team members so that they can adjust their approach depending on emerging needs.

However, Roat has already identified that he would like more training on marketing techniques to ensure that in the future the SEM model is successful and he is able to sell Clinca treated water to as many people as possible.

"I hope that everyone in my village and also other nearby villages will come here and buy this water".

The Sesan River: most people in Kachon Kroum village collect their daily water from here.

CASE STUDY #2

MRS. CHOU SAET MOI

VUEN SAI VILLAGE

Mrs. Chou Saet Moi, 56, was born in the neighboring village of Hat Pok and has lived in Vuen Sai village since she was 11 years old. She is the Team Leader of this SEM group.

Vuen Sai village is located in the district of Vuen Sai, 38km from Banlung, the provincial capital of Ratanakiri Province, along an unsealed dusty road. The village population is a mix of mainly ethnic Laos, Brao, and Chinese and comprises 133 households or 1,130 people.

Vuen Sai village is located on the opposite side of the Sesan River making access to supplies difficult. Any products that are not either grown or made in the village must be transported via a boat trip from Ban Fang village. This includes bottled water which is sold in 0.5 litre bottles at small shops in the village for 500 riel.

Mrs. Chou is married with 6 children and her husband, who used to be a farmer, now works for the Commune level local department as a Commune Deputy.

Water Collection Habits

"Ten years ago I used to collect water for my family from the Sesan River 3 times per day" Mrs. Chou remembers. "Each time it took me up to 30 minutes to collect the river water in a large plastic bucket. Most of the time I collected the water, however my husband and my children helped me when they were able to".

"Even when I was pregnant I had to collect water from the river in front of my house. The river is close but the river bank is steep and slippery and difficult to walk down and up 3 times each and every day".

Mrs. Chou's family gradually saved up enough money and 5 years ago they were able to construct a well in front of their house. They also recently purchased a water pump.

"Before, my 6 children needed to help me around the house and sometimes they were not able to attend school. Now things are better and we can access water much easier".

Mrs. Chou's Concerns

Mrs. Chou's village, as with most villages located along the Sesan River are connected with the ebb and flow of the river which brings with it much needed sediments and nutrients to feed riverside vegetable gardens and farmers crops. However, this same event is also sometimes a source of concern. "I worry about when the rainy season comes and Vietnam opens the dam gates".

There is a cascade of 7 hydropower dams currently operating upstream across the border in Vietnam. The closest dam is located only 80km upstream from Vuen Sai village. Vietnam opened all

dam reservoir gates in September 2009 in response to heavy rains experienced during Typhoon Ketsana. This caused a surge of water to rush downstream in the middle of the night which then broke the river banks and flooded the village. Mrs. Chou and her family had to escape the rising water and could not return to their house for 5 days.

"During the flood dirty water entered our well and contaminated it, so when we drank the well water my family got very sick. Fortunately no-one in my family died".

Social Entrepreneur Model (SEM)

Even though Mrs. Chou uses well water, she still worries about drinking bad quality water and is excited about the SEM project. "I am the SEM team leader in my village and I work with 2 other women to help provide information about this new technology and the water that we are producing".

The Vuen Sai SEM team has been mostly disseminating information by word of mouth and are starting to see some results.

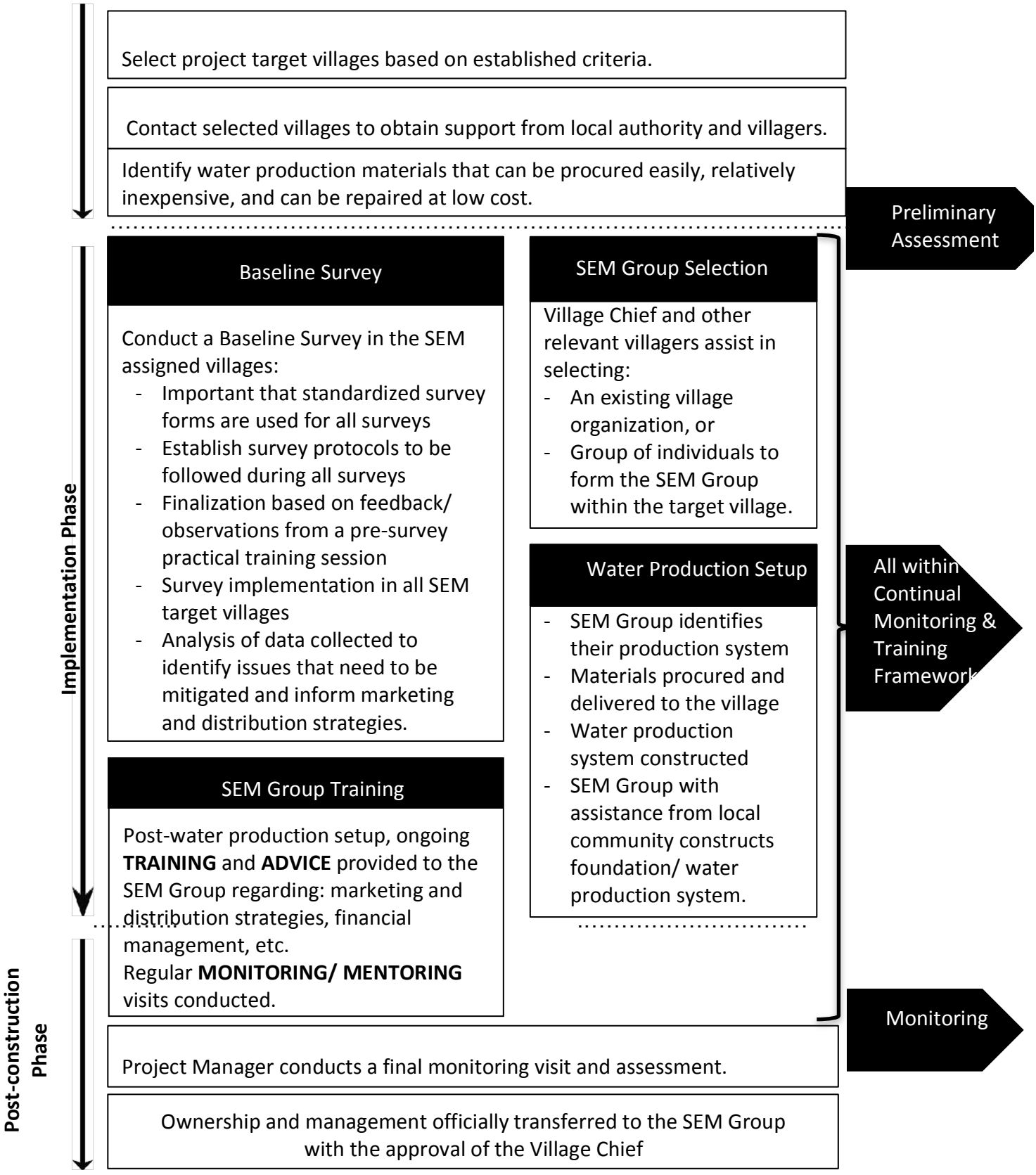
"Now we have some regular customers. There is one man who travels from neighboring Kok Lac village to buy our water. Each time he comes to buy 50 or 60 litres of Clinca treated water which we sell to him at a discounted rate of 4,000 riel with the strategy that he will tell other people". The team's standard price is 1 litre for 300 riel.

The Vuen Sai SEM team members would like to keep contact with the SEM project team and still need their assistance on an ongoing basis to monitor and help provide training and give advice to improve the teams retail, marketing, and distribution strategies.

Vuen Sai's unique water production setup - steeply angled with a pipe at the top to collect rain water run-off from the house. During the dry season water is pumped from the well or river.

Mrs. Chou (Left) and her fellow SEM team members; Mrs. Roat (Middle) and Ms. Sukat (Right)

Appendix 3: Basic Step-by-Step Flowchart for SEM Implementation



Appendix 4: Baseline Survey Form

District: XXXXXXXXXX Household Head: XXXXXXXXXXX

Village: XXXXXXXXXXX Respondent: XXXXXXXXXXX

Survey No.: XX-XX-XXX

X XX

Age of Respondent..... XX

Gender of Respondent..... MALE ○ FEMALE ○

[1] How much combined income does your household make on average every month ..... XXX,XXX,XXX

[2] How many motorbikes are owned by members of your household including you..... XX

[3] (**SUVERYOR**) What type of roofing does the house have? .....

Thatch ○ Iron ○ Corrugated Steel ○ Other: _____ ○

[4] Does your household have a separate farm that your household members work on? . NO ○ YES ○

[4A] How many days did at least 1 family member sleep at the farm in the last week? XX

SURVEYOR: Read this notice to the respondent word for word.

"In the following questions I will be asking some questions about cases of diarrhea in your household. Before I begin, it is important that I let you know what I mean by the word "diarrhea". For this survey we are using the WHO standard meaning of diarrhea, which is 3 or more loose or watery stools in a 24 hour period.

So, when I ask if someone has had diarrhea I mean:

"Has someone had 3 or more loose or watery stools in a 24 hour period."

While the use of the word may have a slightly different meaning in everyday use, for the questions I am about to ask please try and remember that diarrhea will mean 3 or more loose or water stools in a 24 hour period.

If you have any questions about this definition please ask me now."

[6] How many people live permanently in your house/household? XX

[6A] "How many times have members of your household gone to the district Health Center in the last week due to diarrhea?" XX

[7] How many people older than 17 years live permanently in your house/household? XX

[7A] Of those people, who...

	.... currently has diarrhea (12hr)	..... has had diarrhea within the last 3 days
Person 1	○	○
Person 2	○	○
Person 3	○	○
Person 4	○	○
Person 5	○	○
Person 6	○	○
Person 7	○	○
Person 8	○	○
Person 9	○	○

[7B] What is the highest level of education out of these members?

None	Lower Primary	Upper Primary	Lower Secondary	Upper Secondary	Secondary Certificate	Beyond Secondary
0	1 2 3	4 5 6	7 8 9	10 11 12	12 Cert.	12 <
○	○	○	○	○	○	○

[8] How many people younger than 18 years live permanently in your house/household? XX

[8A] Of those people, who...

	.... currently has diarrhea (12hr)	..... has had diarrhea within the last 3 days
Person 1	○	○
Person 2	○	○
Person 3	○	○
Person 4	○	○
Person 5	○	○
Person 6	○	○
Person 7	○	○
Person 8	○	○
Person 9	○	○

XX-XX-XXX

[9] How many people younger than 6 years live permanently in your house/household? …….. XX

[9A] Of those people, who...

	…. currently has diarrhea (12hr)	….. has had diarrhea within the last 3 days
Person 1	○	○
Person 2	○	○
Person 3	○	○
Person 4	○	○
Person 5	○	○
Person 6	○	○
Person 7	○	○
Person 8	○	○
Person 9	○	○

[10] Where does your household primarily get its drinking water?

Well	River	Natural Spring	Bottled Water	Local Stream	Other: _____
○	○	○	○	○	○

[10A] When you cannot get water from that source, where does household get its water?

Well	River	Natural Spring	Bottled Water	Local Stream	Other: _____
○	○	○	○	○	○

[11] What type of container does your household primarily use to store drinking water at your house?

Gourd	Plastic Bucket	Clay Jar/Cistern	Metal Can/Bucket	Pond/Pool	Other: _____	Container Size (Liter):
○	○	○	○	○	○	XX

[12] Do you have a toilet at your house?... …… …… …… ……

NO	YES
○	○

[13] Do you own any other clean water producing devises or chemicals?

(check all that apply)

Chlorine	Ceramic Filter	Bio-sand Filter	Life-Straw	Charcoal Filter	Other: _____
○	○	○	○	○	○

END OF SURVEY

XX-XX-XXX

Appendix 4: SEM Project Video